

Claims:

1. An apparatus for processing a portion of an automobile body comprising:  
a processing device and  
a supporting device movably supporting the processing device, wherein the supporting device is movable relative to the portion of the automobile body being processed.
2. An apparatus according to Claim 1, wherein the processing device comprises a processing head.
3. An apparatus according to Claim 1, wherein the apparatus is arranged and constructed such that movement of the automobile body causes the supporting device to move relative to the portion of the automobile body being processed.
4. An apparatus according to Claim 1, wherein the apparatus is arranged and constructed such that the supporting device is movable relative to the portion of the automobile body being processed by moving both the automobile body and the supporting device.
5. An apparatus according to Claim 1, wherein the processing device is movably supported on the supporting device in a width direction of the automobile body.
6. An apparatus according to Claim 5, further comprising a transverse direction driving device for moving the processing device in a width direction of the automobile body.
7. An apparatus according to Claim 6, further comprising a position detector for detecting the relative positions of the supporting device and the portion of the automobile body being processed, wherein a transverse direction driving device drives the supporting device based on detection signals generated by the position detector.

8. An apparatus according to Claim 1, wherein the processing device is movably supported on the supporting device in a vertical direction of the automobile body.
9. An apparatus according to Claim 8, further comprising a vertical direction driving device for moving the processing device in a vertical direction with respect to the automobile body.
10. An apparatus according to Claim 9, further comprising a position detector for detecting the relative positions of the workpiece and the supporting device, wherein the vertical direction driving device drives the processing device based on detection signals generated by the position detector.
11. An apparatus according to Claim 1, wherein the processing device is movably supported on the supporting device in a width direction and in a vertical direction of the automobile body.
12. An apparatus according to Claim 11, further comprising a transverse direction driving device for moving the processing device in a width direction of the automobile body and a vertical direction device for moving the processing device in a vertical direction of the automobile body.
13. An apparatus according to Claim 12, further comprising a position detector for detecting the relative positions of the workpiece and the supporting device, wherein the transverse direction driving device and the vertical direction driving device drive the processing device based on detection signals generated by the position detector.
14. An apparatus according to Claim 1, further comprising a support mechanism movably supporting the processing device on the supporting device.
15. An apparatus according to Claim 14, wherein the support mechanism movably supports the processing device in a width direction with respect to the automobile body.

16. An apparatus according to Claim 14, wherein the support mechanism movably supports the processing device in a vertical direction with respect to the automobile body.

17. An apparatus according to Claim 14, wherein the support mechanism movably supports the processing device in a width direction and in a vertical direction with respect to the automobile body.

18. An apparatus according to Claim 17, wherein the support mechanism includes a structure that is rotatably and slidably supported on the supporting structure.

19. A method for processing a portion of an automobile body using a processing device comprising:

moving a supporting device relative to the portion of the automobile body being processed while movably supporting the processing device on the supporting device.

20. A method according to Claim 19, further comprising moving the supporting device relative to the portion of the automobile body being processed by moving the automobile body.

21. A method according to Claim 19, further comprising moving the supporting device relative to the portion of the automobile body being processed by moving both the automobile body and the supporting structure.

22. A method according to Claim 19, further comprising moving the supporting device relative to the portion of the automobile body being processed while movably supporting the processing device in a vertical direction with respect to the automobile body.

23. A method according to Claim 19, further comprising moving the supporting device relative to the portion of the automobile body being processed while movably

supporting the processing device in a width direction with respect to the automobile body.

24. A method according to Claim 19, further comprising moving the supporting device relative to the portion of the automobile body being processed while movably supporting the processing device in a vertical direction and in a width direction with respect to the automobile body.

25. An apparatus for processing a workpiece comprising:  
a processing device and  
a supporting device movably supporting the processing device, wherein the supporting device is movable relative to the portion of the workpiece being processed.

26. An apparatus according to Claim 25, wherein the processing device comprises a processing head.

27. An apparatus according to Claim 25, wherein the processing device is movably supported on the supporting device in a direction that is substantially parallel to a line connecting the supporting device and the portion of the workpiece being processed.

28. An apparatus according to Claim 27, further comprising a first driving device for moving the processing device in a direction that is substantially parallel to the line connecting the supporting device and the portion of the workpiece being processed.

29. An apparatus according to Claim 25, wherein the processing device is movably supported in a direction that is substantially parallel to a line that is orthogonal to a line connecting the supporting device and the portion of the workpiece being processed.

30. An apparatus according to 29, further comprising a second driving device for moving the processing device in a direction that is substantially parallel to a line that is orthogonal to the line connecting the supporting device and the portion of the workpiece being processed.

31. An apparatus according to Claim 25, wherein the processing device is movably supported in a direction that is substantially parallel to a line connecting the supporting device and the portion of the workpiece being processed and in a direction that is substantially parallel to a line orthogonal to the line connecting the supporting device and the portion of the workpiece being processed.

32. An apparatus according to Claim 31, further comprising a first driving device for moving the processing device in the direction that is substantially parallel to the line connecting the supporting device and the portion of the workpiece being processed, and a second driving device for moving the processing device in the direction that is substantially parallel to the line orthogonal to the line connecting the supporting device and the portion of the workpiece being processed.

33. An apparatus according to Claim 25, wherein the processing device is movably supported on the supporting device in a direction opposite to a surface of the portion being processed.

34. An apparatus according to Claim 25, wherein the processing device is movably supported on the supporting device in a direction that is substantially orthogonal to a surface of the portion being processed.

35. A method for processing a workpiece using a processing device comprising:  
moving a supporting device relative to the portion of the workpiece being processed while the processing device is movably supported on the supporting device.

36. A method according to Claim 35, further comprising moving the supporting device relative to the portion of the workpiece being processed while movably supporting the processing device in a direction that is substantially parallel to a line connecting the supporting device and the portion of the workpiece being processed.

37. A method according to Claim 35, further comprising moving the supporting device relative to the portion of the workpiece being processed while movably

supporting the processing device in a direction that is substantially parallel to a line orthogonal to a line connecting the supporting device and the portion of the workpiece being processed.

38. A method according to Claim 35, further comprising moving the supporting device relative to the portion of the workpiece being processed while movably supporting the processing device in a direction that is opposite to a surface of the portion being processed.

39. A method according to Claim 35, further comprising moving the supporting device relative to the portion of the workpiece being processed while movably supporting the processing device in a direction that is substantially orthogonal to a surface of the portion being processed.

40. A method according to Claim 35, further comprising moving the supporting device relative to the portion of the workpiece being processed while movably supporting the processing device in a direction that is substantially parallel to a line connecting the supporting device and the portion of the workpiece being processed and in a direction that is substantially parallel to a line orthogonal to the line connecting the supporting device and the portion of the workpiece being processed.

41. An apparatus for processing an automobile body comprising:  
 a supporting structure comprising a first arm and a second arm,  
 a first follower frame,  
 a second follower frame coupled to an end portion of the second arm, the first and second follower frames respectively comprising first, second and third transversely disposed frames, wherein the second transversely disposed frame of the first follower frame is coupled to an end portion of the first arm and the second transversely disposed frame of the second follower frame is coupled to an end portion of the second arm,  
 a first transverse driving cylinder coupled and transversely disposed with respect to the first arm, the first transverse driving cylinder comprising a rod actuatable to move between an extended position and a retracted position, wherein when the rod is extended

in the extended position, the first follower frame is locked in the transverse direction, and when the rod is withdrawn to the retracted position, the first follower frame can freely move in the transverse direction,

a second transverse driving cylinder coupled and transversely disposed with respect to the second arm, the second transverse driving cylinder comprising a rod actuatable to move between an extended position and a retracted position, wherein when the rod is extended in the extended position, the second follower frame is locked in the transverse direction, and when the rod is withdrawn to the retracted position, the second follower frame can freely move in the transverse direction,

a first vertical driving cylinder coupled and vertically disposed with respect to the first arm, the first vertical driving cylinder comprising a rod actuatable to move between an extended position and a retracted position, wherein when the rod is extended in the extended position, the first follower frame is locked in the vertical direction, and when the rod is withdrawn to the retracted position, the first follower frame can freely move or pivot in the vertical direction,

a second vertical driving cylinder coupled and vertically disposed with respect to the second arm, the second vertical driving cylinder comprising a rod actuatable to move between an extended position and a retracted position, wherein when the rod is extended in the extended position, the second follower frame is locked in the transverse direction, and when the rod is withdrawn to the retracted position, the second follower frame can freely move or pivot in the vertical direction,

a first processing device coupled to the first follower frame and

a second processing device coupled to the second follower frame, the first and second processing devices being selected from the group consisting of a spray nozzle and an air gun.